

## *Moisture balance series UX 3001*

# UX 3011, 3031, 3081



**Short measurement time, gentle and even drying of samples, high reproducibility**

**Automatic or time-controlled measurement switch-off**





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**Moisture balance series UX 3001**



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# MOISTURE BALANCE METER SERIES

## USER'S MANUAL

UX 3001



### Basic information

#### Intended use

ULTRA X moisture analysers are used to quickly measure moisture and dry matter in solid, viscous and fluid substances by means of thermo gravimetric analysis. A sample is weighed while being dried by infra-red heat.

#### UX 3011



- Temperature-controlled infra-red heater 250 W
- Temperature range: 40 – 200 °C
- Stainless steel drying tray 111 mm diameter

#### UX 3031



- Special device for gypsum industry
- 2 temperature-controlled heaters for separate measurement of
- free and chemically bound moisture in gypsum products
- Temperature range: 40 – 360 °C
- Stainless steel drying tray 111 mm diameter

#### UX 3081



- Special device for large samples, e.g. in the chipboard industry
- 2 temperature-controlled ceramic heaters
- Temperature range: 40 – 220 °C
- Stainless steel drying tray 245 x 120 mm

#### Safety instructions

Always transport the device in an upright position and protect it against knocks and bumps.

Always operate the device on a level surface, using a vibration-free base. Avoid draughts.

Please ensure that no sample spills land next to the tray support plate. Use a vacuum cleaner to remove particles.

Never touch the (luminous) heater when it is hot, as there is a risk of injury!

Always disconnect the plug from the mains supply before performing any work on the device (e. g. changing the heater)! Repairs should only be carried out by a qualified technician.

Only use accessories specifically designed for use with ULTRA X devices. Please take extra care

when using flammable samples! You may need to contact the manufacturer for advice.

Goods should only be shipped in the original packaging using the original packaging material.

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### UX 3001



#### Warranty

Exotek Instruments undertakes to repair faulty devices within the warranty period, free-of-charge, if the defect is a manufacturing fault. This warranty covers the repair of spare parts and working hours required. It does not cover normal wear-and-tear and soiling and staining of the device. Exotek Instruments will not accept any freight costs.

This warranty does not apply to:

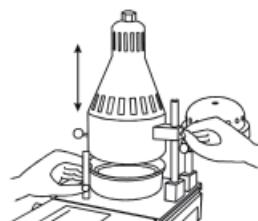
- improper use of the device,
- use of the device for purposes other than those stated by us,
- mechanical damage or damage caused by fluids or sample matter,
- incorrect set up or wrong electrical wiring,
- mechanical damage of the load cell e.g. as a result of being overloaded.

#### Transport, packaging, installation site

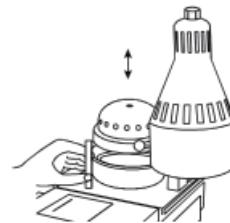
- Please check the packaging and device for any damage upon delivery.
- Please retain the original packaging in case you need to return the goods to Exotek Instruments.
- Please only use the original packaging when returning the goods.

#### Initial operation

1. Place the device on a stable, vibration-free surface, as level as possible and protected from draughts. The most suitable locations are the corners of a room, rooms with only one entrance and heavy tables on concrete floors.
2. (not for ULTRA X 3081)  
First adjust the heater to the correct height. To do this, place the level gauge next to the reflector pan on the device.



Now adjust the height of the reflector so that its lower edge is in line with the top surface of the rod. To do this, slightly loosen (never completely unscrew) the knurled screw on the reflector holder at the rear of the device. Tightly fasten the knurled screw again.



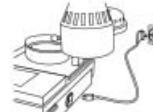
3. Now swing the heater to the right or backwards to its rearmost position. Avoid using force to twist the heater beyond its stop point, as this could damage the device.



4. Now place one of the two drying trays supplied on the tray receptacle using one or two tongs. The notch in the reflector tray acts as an access gap for easy positioning of the tray.



5. Check that the voltage indicated on the type plate matches the voltage available at the place of installation.
6. The power cable is inserted into the device's power jack and a suitable earthed mains supply.



After the power supply has been connected, the device can be switched on or off using the on/ off button on the front cover.



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### Initial operation (continued)

1. 7. In order to prevent weighing system measuring errors, the device should be switched on for 20 minutes before being used to allow for heat compensation. If weight values vary in the display's milligram range during this period, this is considered normal within this phase. If the device is switched off using the on/off button, it does not require a warm-up period after switching it on with the same button.
- 1.8. ULTRA X moisture measuring devices are supplied, so that in most cases substances can be measured immediately. If you are not satisfied with the result, the measurement parameters can be set differently:

## Operation

### Basic functions

#### Display and buttons



- T** Tare button for setting the Button for accessing and unassigned weight display back to zero
- on/off** Button for switching the function Button for accessing and unassigned program on/off
- esc** Button for exiting Button for confirming entries unassigned menu levels
- up** Button for accessing and unassigned weight display back to zero scrolling through the menu
- down** Button for accessing and unassigned program on/off scrolling through the menu
- set** Button for confirming entries
- P1** unassigned
- P2** unassigned
- P3** unassigned

#### Factory settings:

Temperature: 105 °C

Automatic switch-off with parameters:

Weight loss 10 mg

Start of query 2 min

Query interval 25 sec

Buzzer switched on when measuring process is complete

## Menu

### Menu settings

The device's options menu can be accessed using the "up" or "down" button. In this instruction manual, it is assumed that the "down" button follows the menu item sequence.

The menu is operated using a uniform structure.

This can be explained using the setting of the drying temperature as an example:

#### Temperature control

- down** Temperature control
- set**
- UP or DOWN** Setting drying temperature
- SET** Confirm and return to menu level 1
- ESC** Return to menu level 2 from level 3

The following settings can also be defined in the same way:

#### Measurement unit



During measurement, the device optionally displays:

- % moisture
- % dry matter (TS)
- % moisture Atro ( ),  
i.e. moisture related  
to the dry matter
- Dry matter (TS) in g/1000g
- Residual weight g
- Current weight

#### Printer options



The built-in or separate printer can be connected to the device (so that data can be output simultaneously via the interface).

It is possible to select the number of prints and print intervals

#### Automatic switch-off or timer



The automatic system dries the sample until a constant weight is reached and then switches off the heater.

## Automatic system

### Automatic switch-off or timer (continued)

The following settings can be defined here:

1. Weight loss in mg  
a value should be defined here which corresponds to approx. 0.1 % of the original sample weight, e.g. for 10 g original sample weight 10 mg
2. Query interval in sec  
an interval should be selected here, so that the sample is not dried for too short a period but also not for far too long. A period of 20 to 30 secs is normally adequate.
3. Start of query in min  
Specify how long the samples should be dried for without the automatic system being activated. The factory-set 2 minutes are usually adequate. This value should be increased for extremely low temperatures, so that the device does not switch itself off prematurely.  
This affects the UX 3031 in particular, when free moisture is being measured at 45°C

## Timer

It is possible to select a drying time of up to 99 minutes

### Preheating level „Preflash“



This is a useful function for speeding up the measuring process when you have samples with an extremely high moisture content (e.g. activated sludge in a sewage plant).

Select the % value dry matter up to which the sample should be dried with maximum heat. Once this % value has been reached, the sample is gently dried using the low temperature previously specified.

### Calibrating the balance



Once selected, the device displays „Cal, Ext“ If you place a 200g sample weight, class F1 on the balance, this process ends automatically.

### Date and time



These will appear on the printout

## Temperature calibration

If a new heater has been fitted, the temperature on the sensor and near the sample can be calibrated here (calibration set with separate instructions required).

### Buzzer



The buzzer sounds when the measuring process is complete and can be switched on or off.

### Language



Select your language here.

## Moisture analysis process

The device should be connected to the mains supply and switched on with a drying tray. A weight value is displayed.

1. Set balance to zero using „tare“ button, display „0.000 g“.
2. Evenly distribute approx.10 g sample material in the drying tray and wait for the weight readout to stop.
3. Swing the heater over the sample. ( for UX 3081 use heater switch) After a brief moment, the heater switches itself on and the drying phase begins. Header data is printed in advance for devices with a built-in printer. The sample is dried until it has reached a constant weight; the heater is then switched off automatically. The time and measurement value is printed for devices with a printer.  
If you do not wish to make any measurements, please always ensure that the heater has been swung back to its rearmost position!
4. Measurement values are displayed for the entire length of time the heater is positioned above the sample.

Please ensure drying trays have cooled down before using for measurement.

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### UX 3001



#### Data interface

In addition to the display screen, weighing data, temperature and drying data is output via the standard serial interface.

The separate printer UX 3091 or a computer can be connected to the device.

#### Interface description

Model: V24 RS 232 serial data transmission

Transmission rate: 9600 baud

Number of bits 8 data bits

1 stop bit

Parity check none

Handshake none

#### Potential errors

No readout on display screen: Swing heater backwards to a rear position, (for UX 3081 use switch).

#### Care and maintenance

Disconnect the device from the mains supply!

Clean the device regularly with a damp cloth, using a mild detergent. Please pay particular attention to the IR heater.

We recommend taking out a service contract, particularly if you are using the device in a dusty environment. If you are interested, please contact us.

#### Technical data

Main supply	230 V / 48 - 63 Hz
Power consumption	275 W - 850 W (see type plate)
Weighing capacity	max. 750 g (UX 3081 max. 400 g)
Reading accuracy	0.001 g
Drying tray stainless	steel approx. 130 mm (250 x 125 mm for UX 3081)
Measuring units	% moisture, % dry matter % ATRO moisture (moisture content compared to dry weight) g dry matter based on 1000 g current weight, residual weight
Drying process	Automatic switch-off function or timer up to 99 minutes
Drying temperature	UX 3011 (40 - 180 °C), UX 3011 Q (60 - 360 °C) UX 3031 (IR heater 40 - 180 °C, quartz heater 120 - 360 °C) UX 3011 HQ (120 - 600 °C)
Drying temperature	UX 3081 (40 - 180 °C), UX 3081 WQ (100 - 300 °C)
Data output	serial V 24 RS 232, 9-pole plug
Dimensions / Weight	W x D x H UX 3011, 3031 (app. 380 x 280 x 440 mm), 8.8 kg UX 3081 (app. 380 x 300 x 220 mm), 13.2 kg

Models additionally labeled with „D“ have an integrated printer.

*Technical modification reserved.*

**MOISTURE BALANCE METER SERIES  
USER'S MANUAL**

**UX 3001**



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